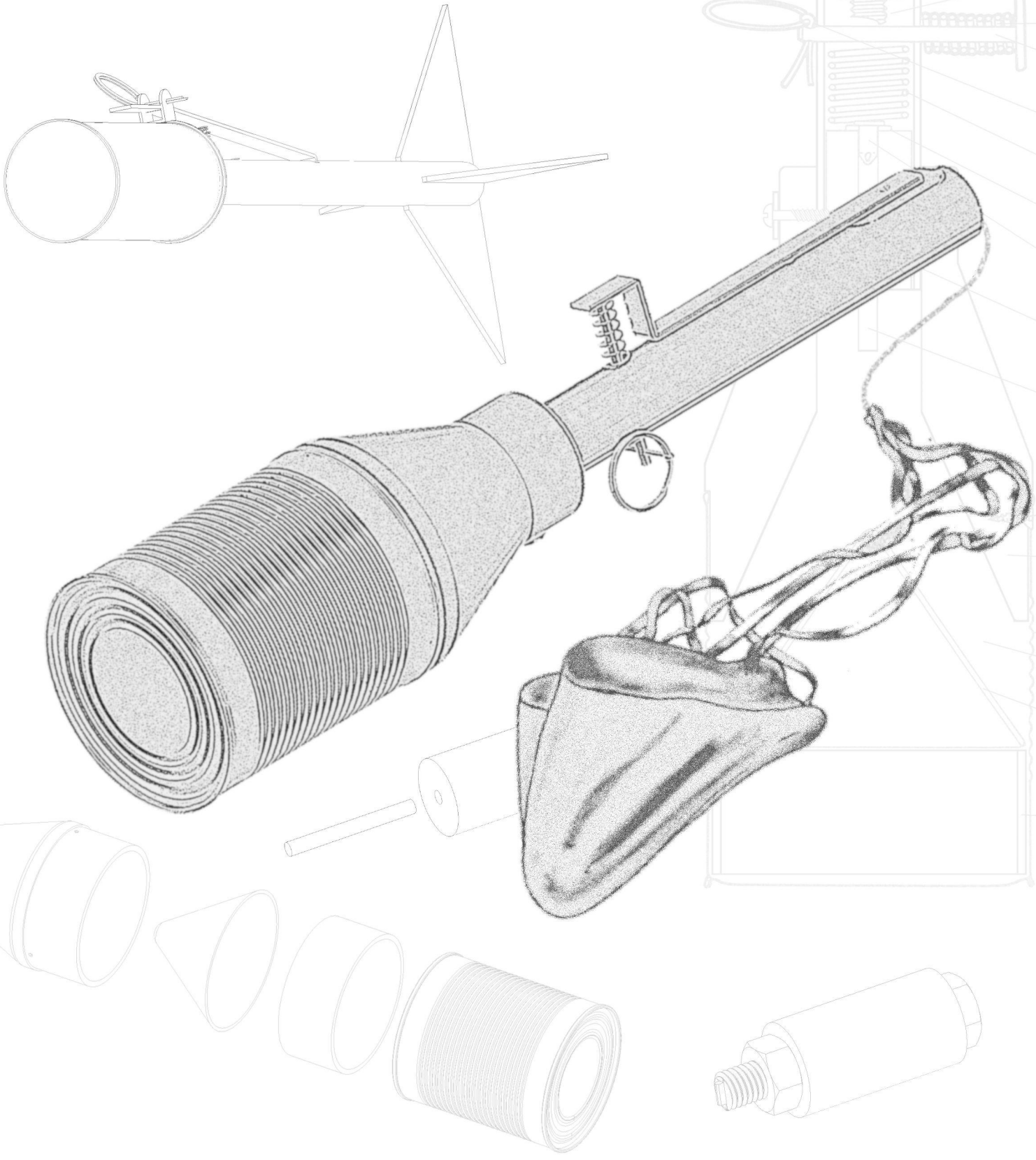
IMPROVISED ANTI-ARMOUR HAND GRENADES



STANDARD IMPROVISED MUNITIONS

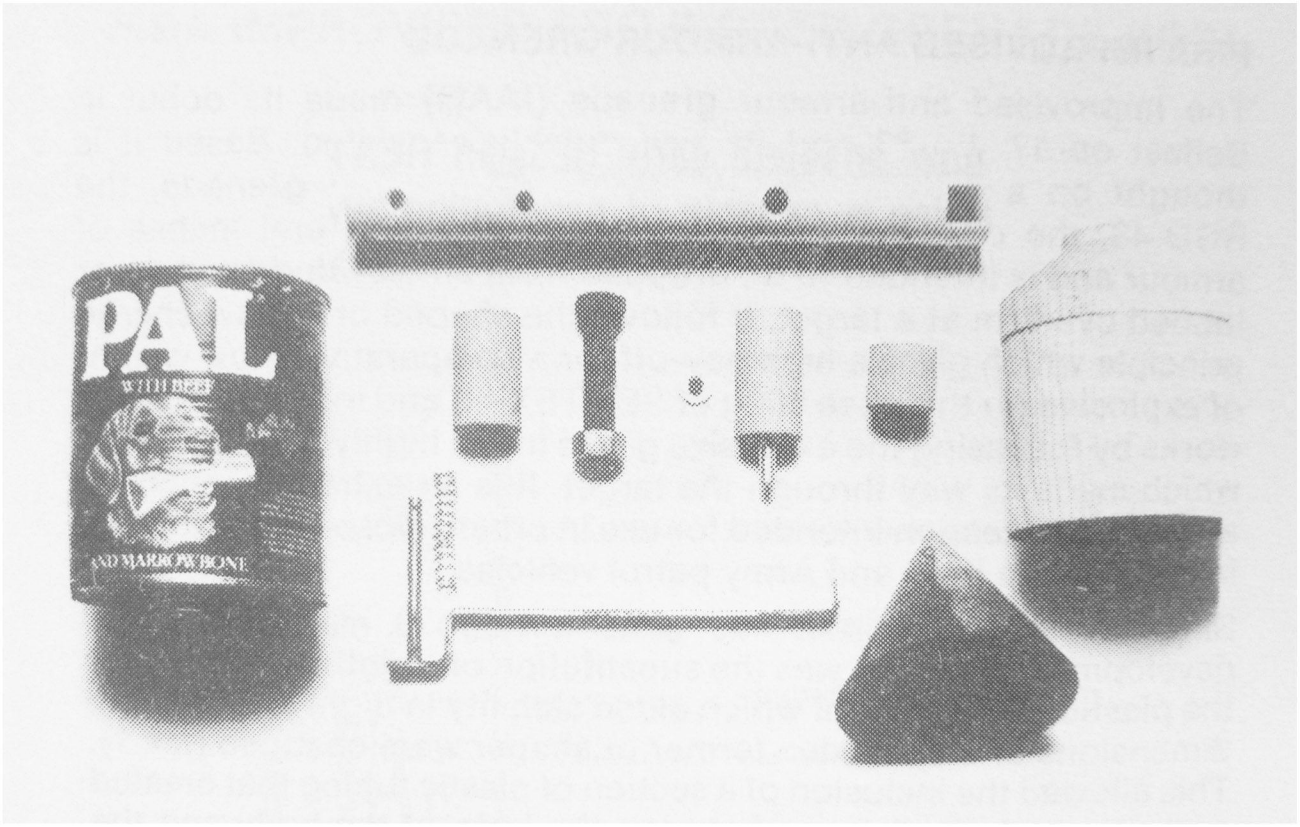
PIRA Mark-1 IAAG (Improvised Anti-Armour Grenade)

The PIRA Improvised Anti-Armour Grenade (IAAG) or 'drogue bomb' first appeared in Belfast on 17 July 1987 and its use quickly escalated. The weapon is essentially an improvised version of the now obsolete Soviet RPG-43 and RKG-3 series of HEAT grenades. It is capable of penetrating several inches of armour and is intended to be dropped from an elevated position or thrown underarm towards a target. It follows the shaped or hollow-charge principle which gives a high pay-off for a comparatively low weight of explosive (in this case 500g of SEMTEX-H) and works by focusing the explosive into a highly penetrative jet. It is an extremely effective anti-armour weapon intended for use in urban, close-range attacks, in the main on RUC and Army patrol vehicles which have since required modifications to help counter attacks from the weapon.

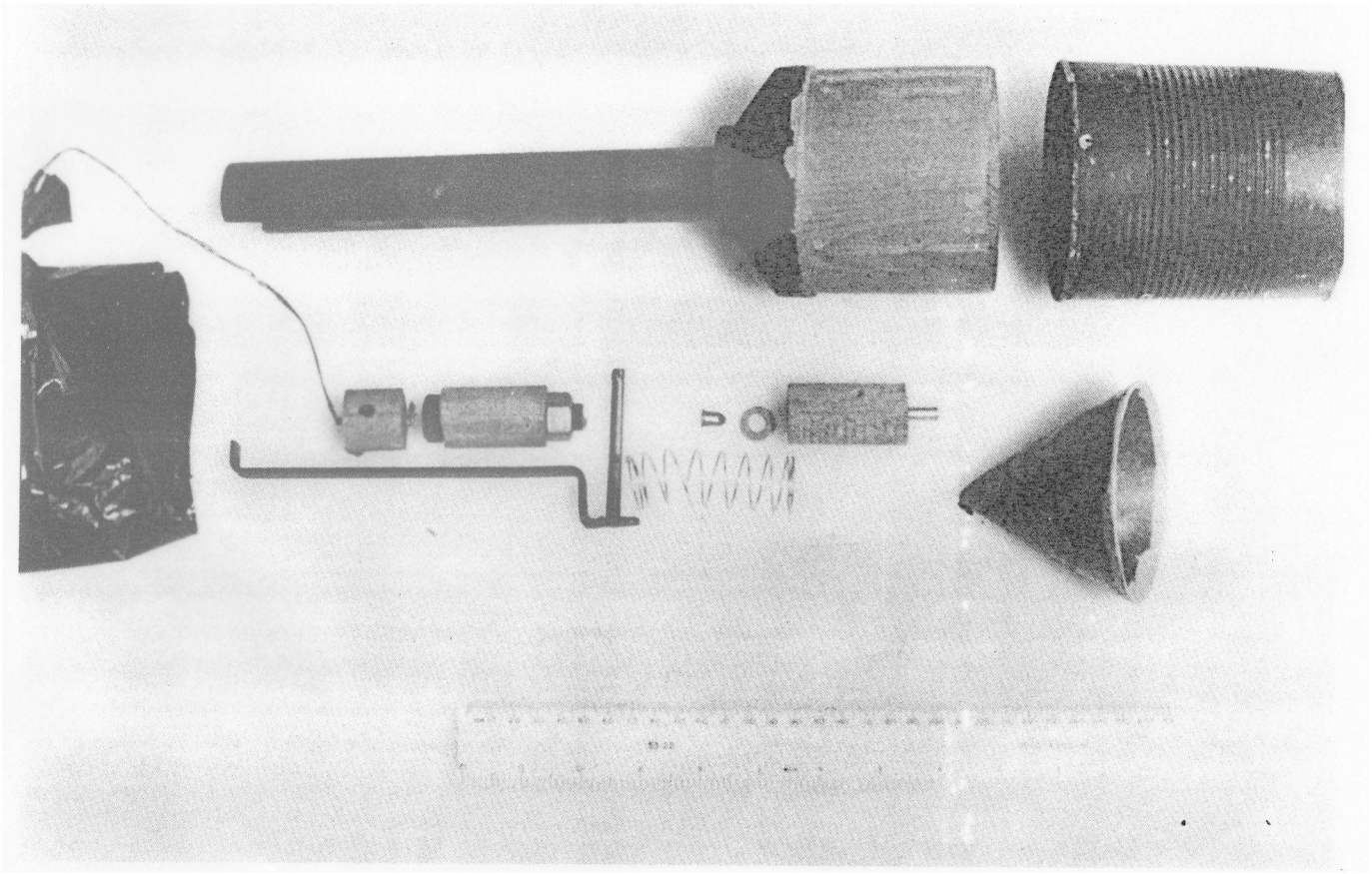
The body of the grenade is a large 20oz food tin with a wooden plug fitted into the top with a 10 inch long PVC pipe handle protruding. The can contains a filling of SEMTEX plastic explosive shaped between the wooden former plug and a cone folded from copper sheet. A 40mm long section of plastic pipe placed at the bottom of the can provides a short stand-off distance. The PVC pipe handle contains the firing mechanism. The initiator is housed in a wooden plug at the front end of the tube and comprises a plain detonator protruding into the SEMTEX charge with a .22 rimfire blank inserted into the plug behind it, its rim resting on a steel washer. The cartridge is fired by a chisel-edged bolt housed in a a short length of wooden dowel which functions as a heavy sliding striker. In its safe position the bolt is held back by a detent bar which transverses through the tube and is attached to a fly-off lever. A safety pin and ring inserted through the bar lock the fly-off assembly.

When the safety pin is removed the detent is still held by the lever, and when the thrower releases the lever it is ejected by a compression spring allowing the striker bolt to move forward, compress the creep spring and strike the cartridge which sets off the detonator. The ejection of the lever releases a stabilizing drogue made from two polyethylene strips (cut from a rubbish bin liner) or in the later model a small parachute made from cloth and ribbon. A tail fin assembly which can be fitted to the handle via a straight coupling has also been encountered though is less common.

The IAAG is small enough to be concealed under a coat or inside a holdall and is an ideal weapon to be given to 'young bloods'. Excepting the SEMTEX-H and detonators the other components are widely available and can be purchased without arousing suspicion. The body itself is a large food tin and the rest is made using plastic tubing, steel bar, screws and wood. The grenades have always been painted a matt black colour and are sometimes found contained within plastic transit tubes.



An example of IAAG components.



A dismantled IAAG used in an attack in 1987 which failed to detonate.

PIRA weapons demonstration video.

Operation

A: Two elastic bands securing the drogue are removed from the bottom of the handle. The metal fly-off lever and handle are held together and the safety pin is removed.

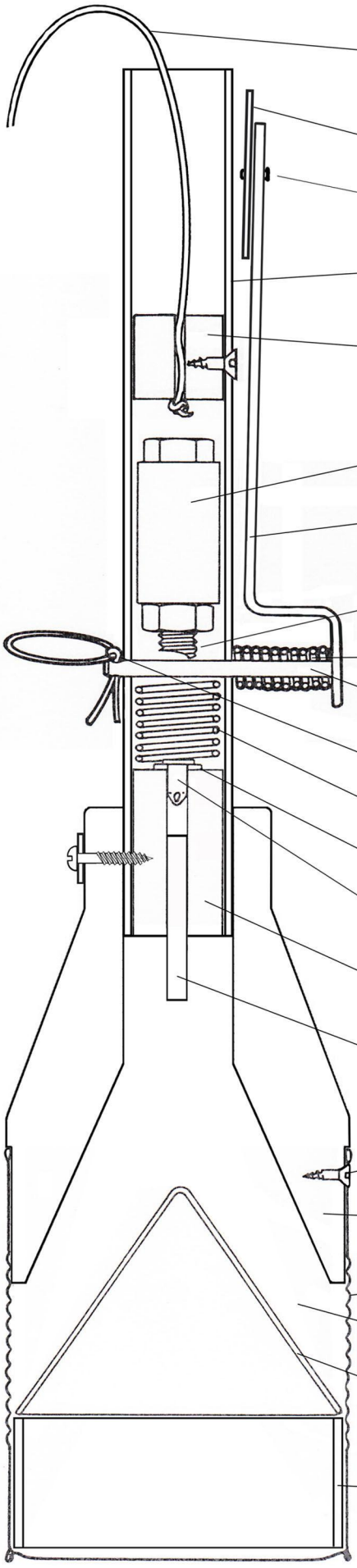
B: The grenade is then thrown or dropped from an elevated position onto a target.

C: The stabilizing drogue (folded up under the fly-off lever) is deployed and aids in orientating the grenade during flight to ensure a 'nose first' impact.

D: On impact, the inertia pellet (A chisel-edged bolt housed in a section of wood dowel) overcomes the creep spring driving the striker onto the rimfire blank cartridge which in turn initiates the plain detonator.

E: Due to the fact this device closely resembles the Soviet RPG-6 and RPG-43 anti-tank grenades a parallel can be drawn with the reported capabilities of the RPG-43 being able to defeat 75mm of Rolled Homogenous Armour.

PIRA MK1 IAAG (IMPROVISED ANTI-ARMOUR GRENADE)



STRING TO CLOTH OR POLYETHYLENE DROGUE

DROGUE HOLDER (PLASTIC PAD)

HAMMERED DOWN NAIL

32MM PVC PIPE HANDLE (10" LONG)

WOOD PLUG

215mm (8.5")

WOOD DOWEL INERTIA PELLET

METAL FLY-OFF LEVER

CHISEL EDGE BOLT (M10 X 55)

COMPRESSED SPRING

DETENT BAR

SAFETY PIN (COTTER PIN & SPLIT RING)

LIGHT CREEP SPRING

STEEL WASHER

.22 RIMFIRE BLANK

WOOD INITIATOR HOUSING

140mm (5.5")

PLAIN DETONATOR

3x WOOD SCREWS OR NAILS

40mm

WOODEN FORMER PLUG (TURNED ON A LATHE)

20oz FOOD CAN

APPROX 500g SEMTEX

COPPER CONE (95MM X 83MM DEEP)

40mm

STAND-OFF PIECE (PLASTIC TUBE)

OVERALL LENGTH:	**430MM**
DIAMETER:	**100MM**
STABILIZER:	**A: 90MM X 1070MM POLYETHYLENE STRIPS X2**
	B: 12" CLOTH PARACHUTE & RIBBON
MAIN FILLING:	**500g SEMTEX-H**

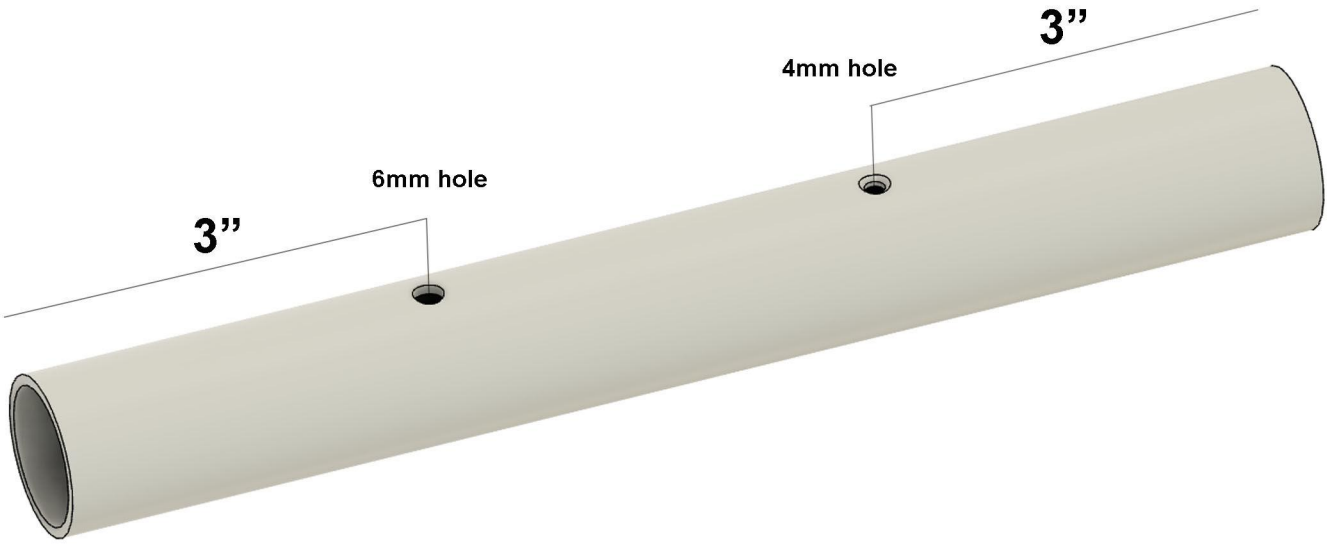
PIRA Mark-1 IAAG (Improvised Anti-Armour Grenade)

Overall length	430mm
Warhead container	20oz food tin (100mm dia x 120mm high)
Handle	32mm dia PVC pipe (10” long)
Initiator assembly	Impact / Inertia pellet
Main filling	500g SEMTEX-H
Stabilizer	12” cloth parachute tied to 1ft ribbon strips
Transit tubes	110mm dia drainage pipe + end caps

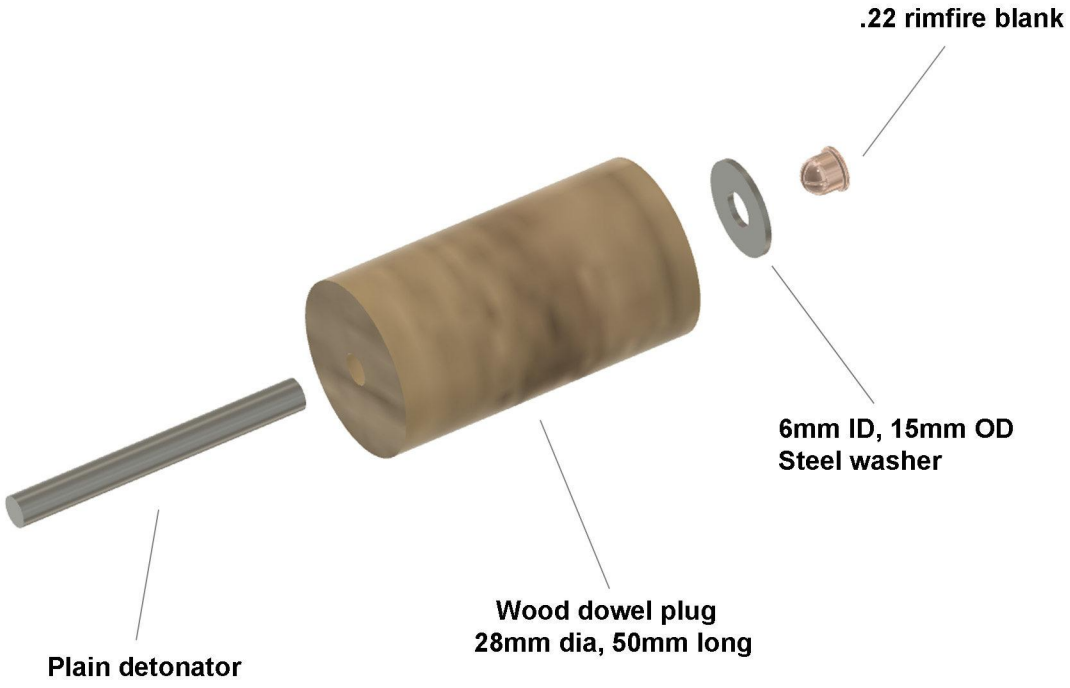
C.T.C.A

Construction of the MK1 IAAG

The handle is made from a 10” long section of 32mm outside diameter, 2.5mm thick PVC pipe. Two holes are drilled 3” from either end.



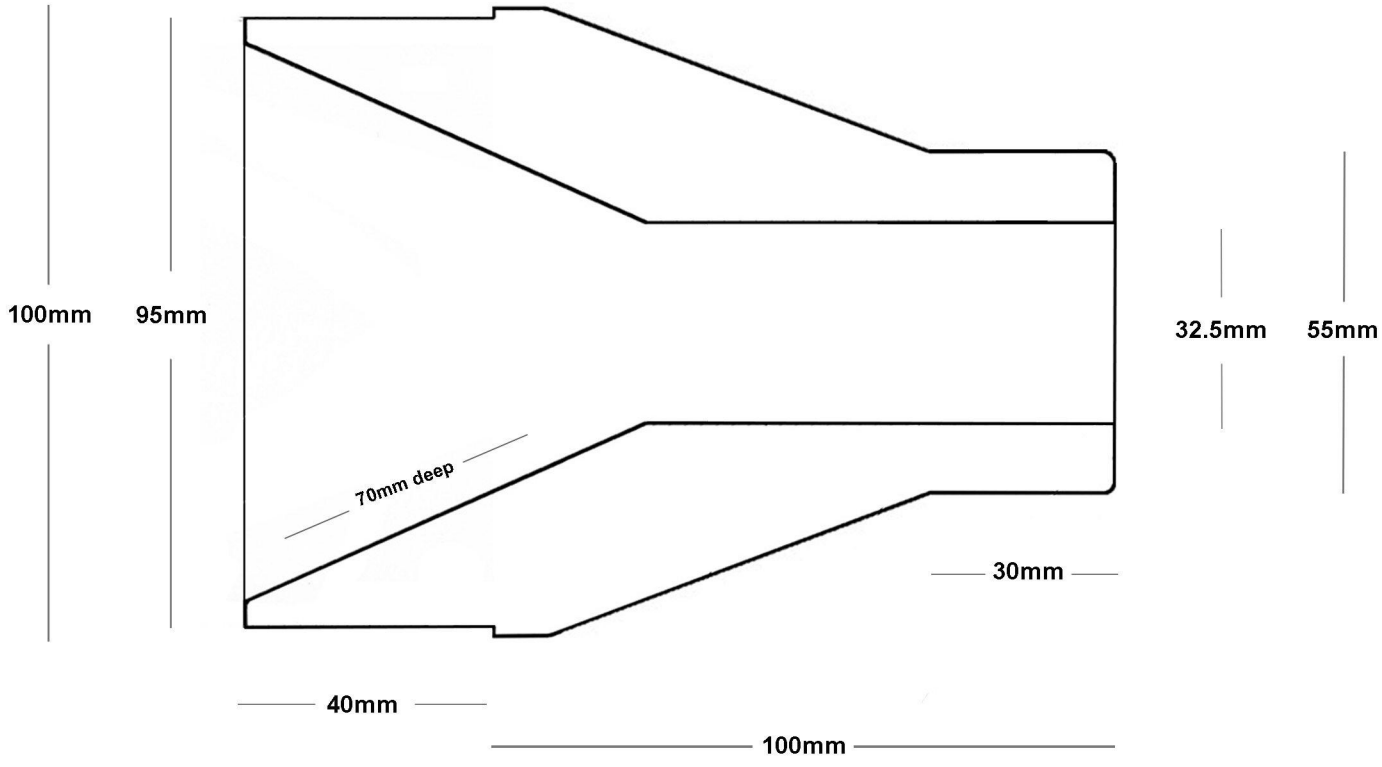
Initiator assembly



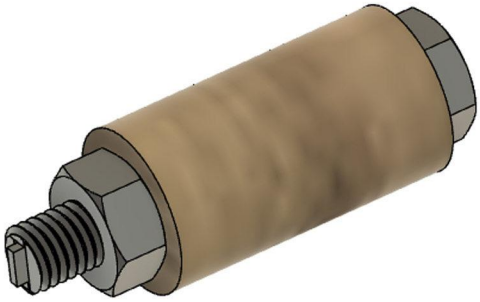
The plain detonator protrudes 1/2”

Former Plug

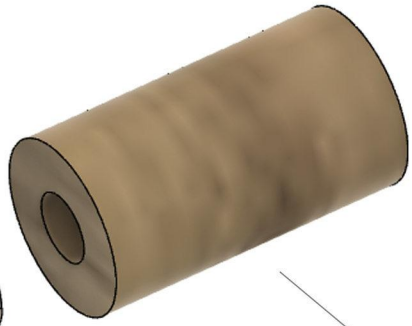
Turned on a wood lathe



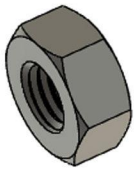
Inertia Pellet / Striker



Chisel edge bolt (M10 x 55mm)



Wood dowel (28mm OD / 45mm long)

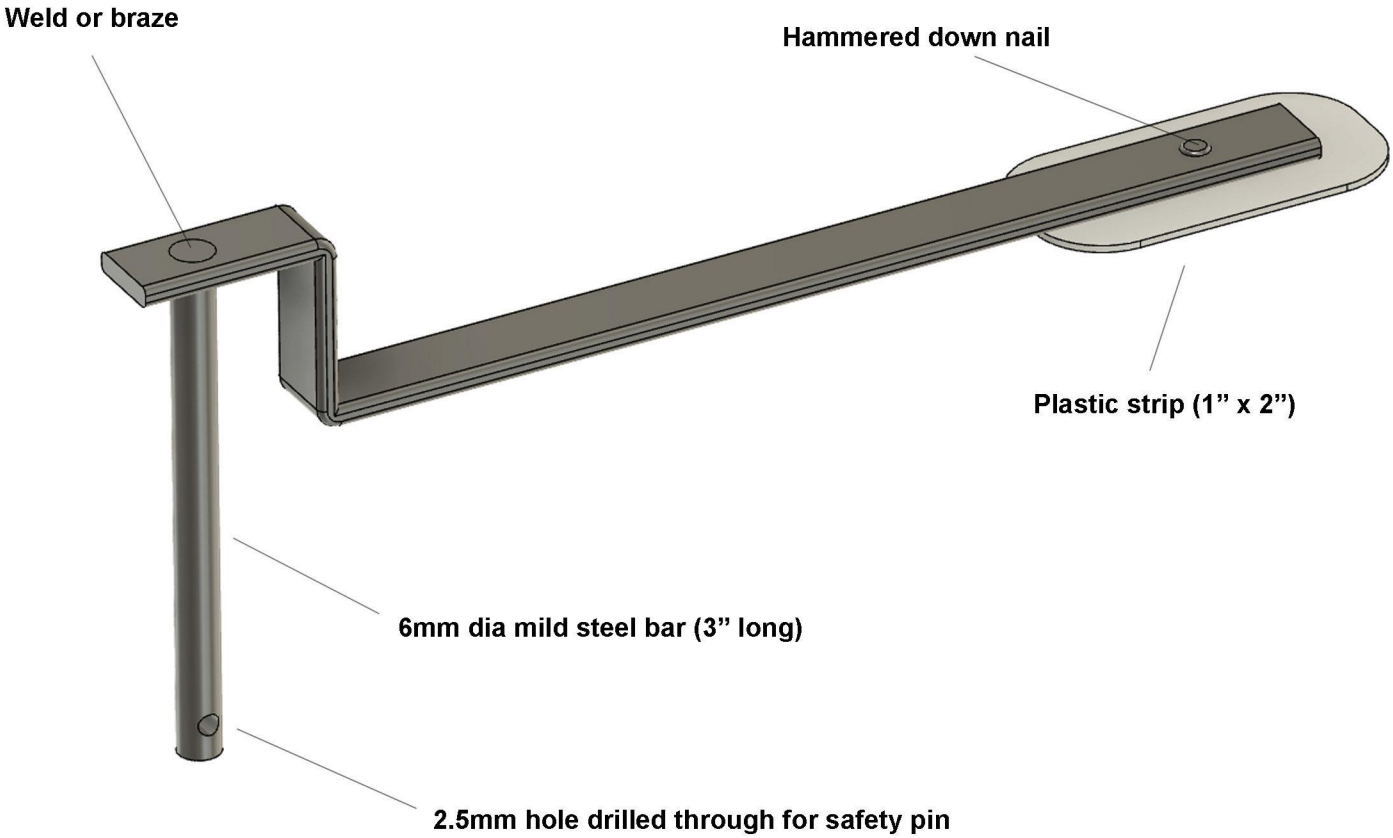


M10 nut

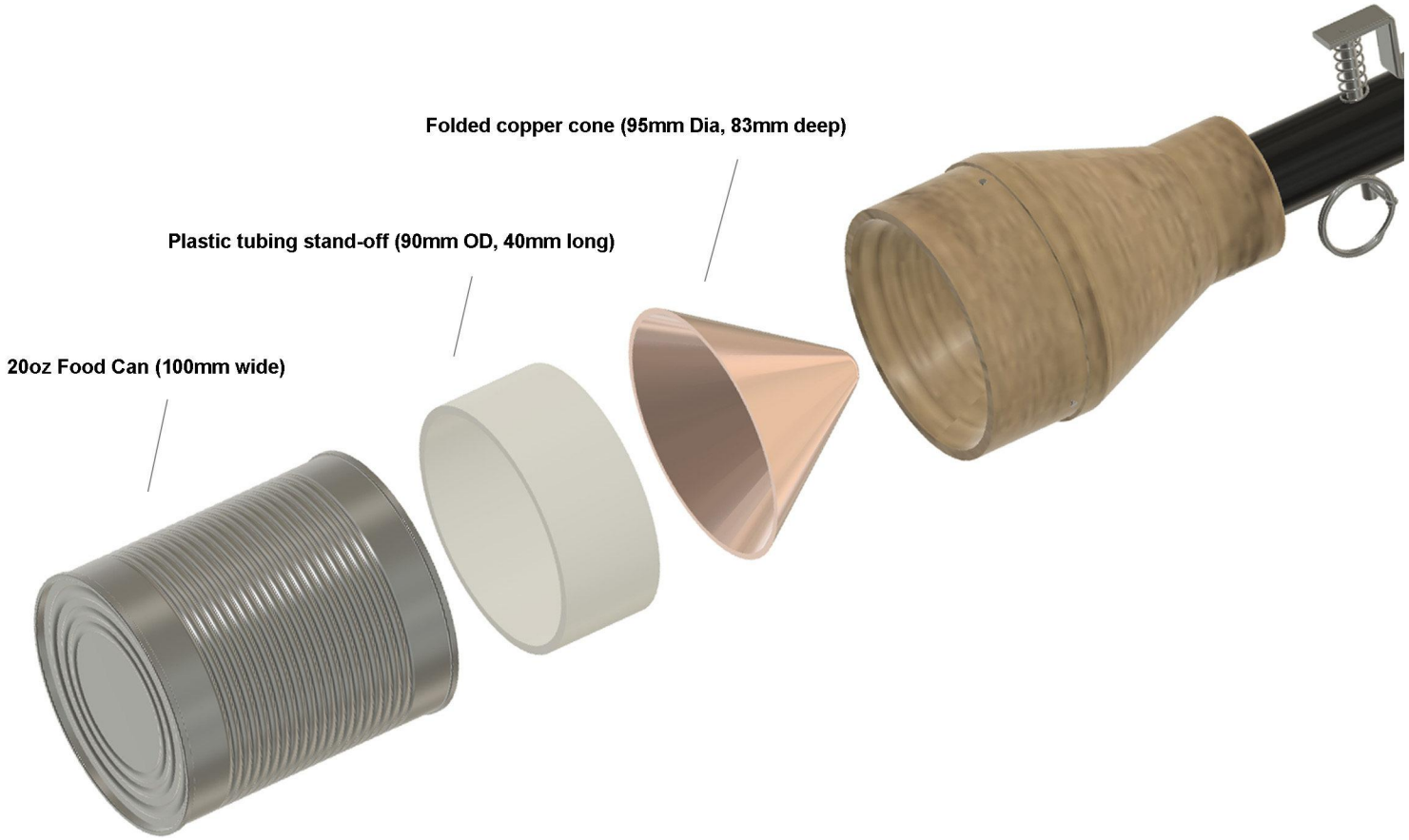
Creep spring: 25mm OD, 70mm long, 9 coils. light gauge wire

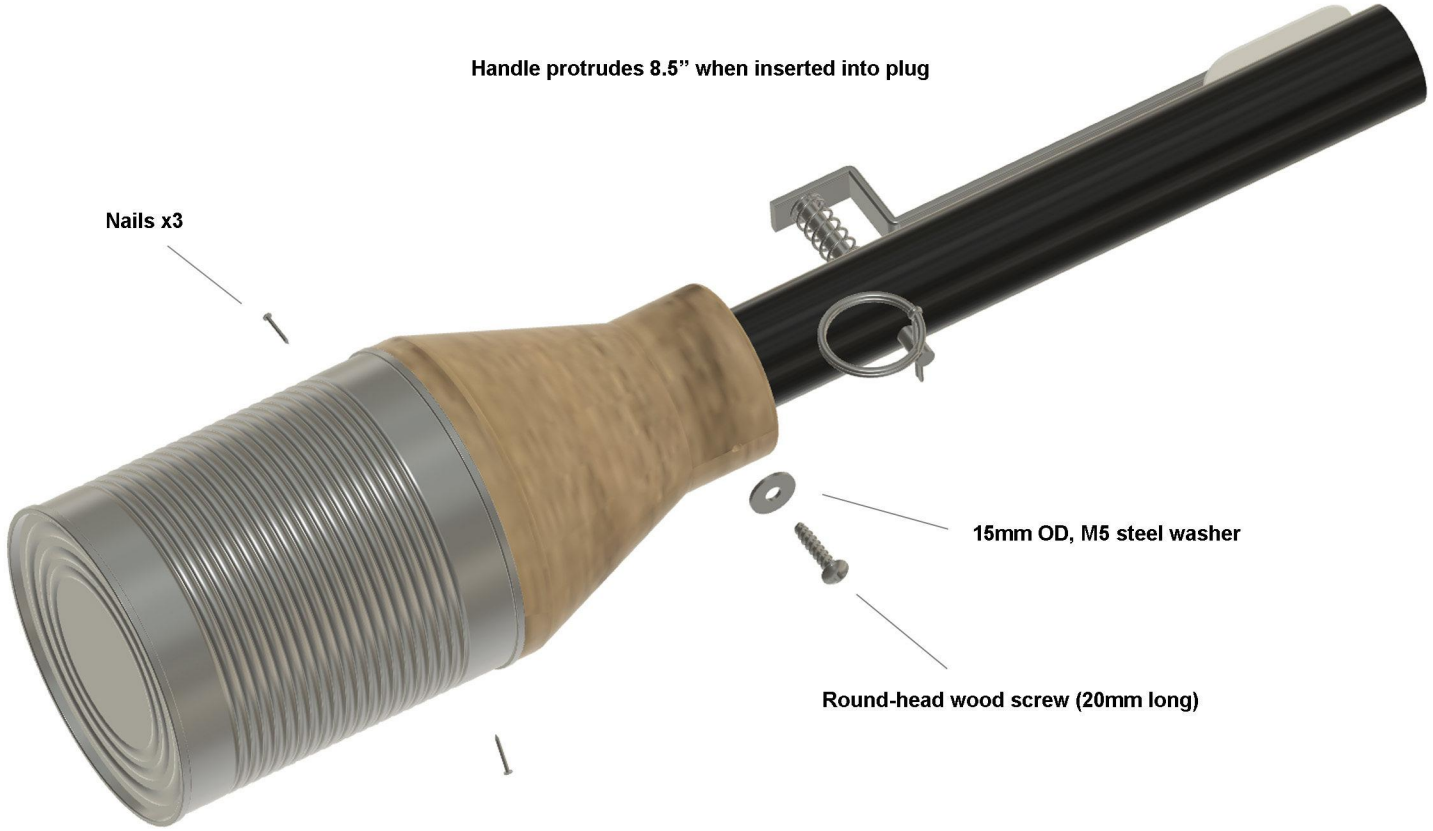
Fly-off Lever

8” long Mild Steel Strap, 2mm thick, 13mm (1/2”) wide



Fly off spring: 13mm OD, 1mm wire, 75mm long


Folded copper cone (95mm Dia, 83mm deep)
Plastic tubing stand-off (90mm OD, 40mm long)
20oz Food Can (100mm wide)

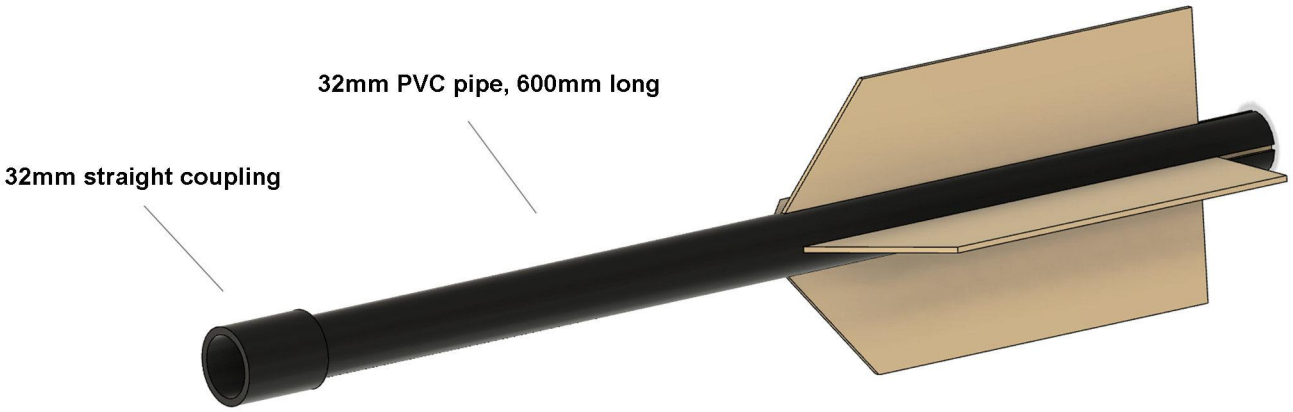

Handle protrudes 8.5” when inserted into plug
Nails x3
15mm OD, M5 steel washer
Round-head wood screw (20mm long)

Stabilizing drogue

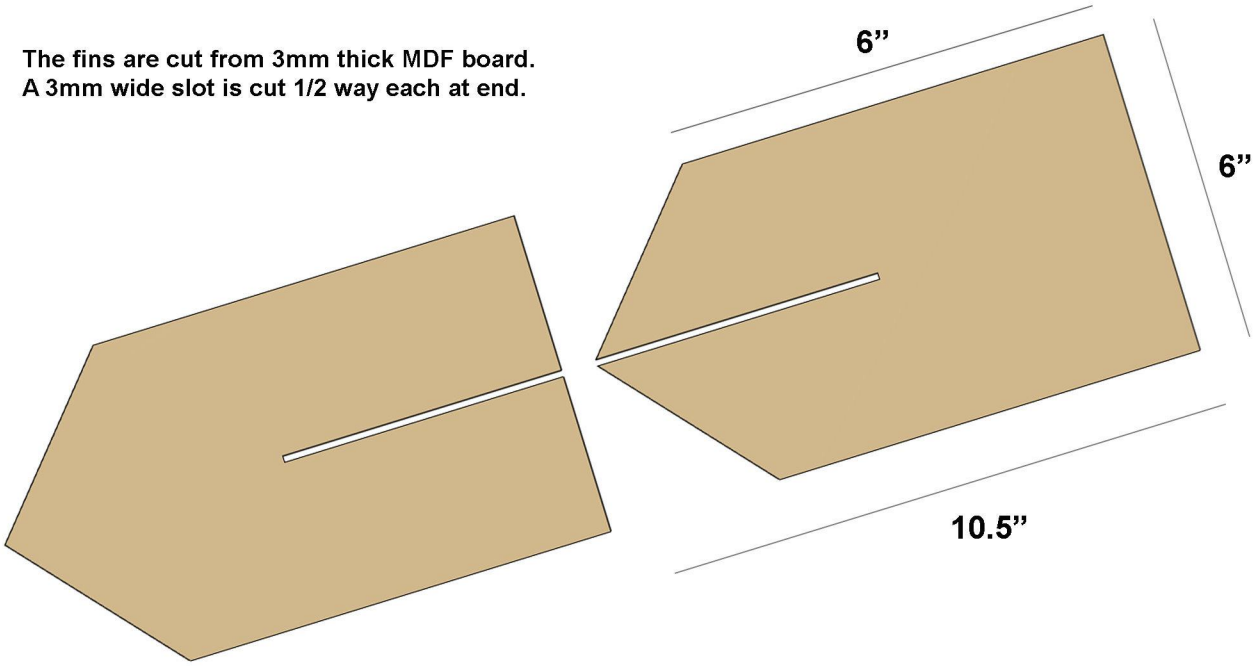
Early versions of the IAAG used a stabilizer consisting of two polyethylene strips, 9cm wide x 107cm in length cut from a rubbish bag. This was later replaced with a small cloth parachute drogue.

The drogue is cut from a piece of thin silk cloth around 12" across. Two 3ft lengths of 10mm wide ribbon are fed through each corner of the cloth using a stitching awl and tied off. A 6" length of string is then fed through and tied to the folded ends of the ribbon strips which is then fed through the hole in the wood plug and tied off to secure the drogue in place. The wood plug is positioned in the handle and drilled to accept a small wood screw.

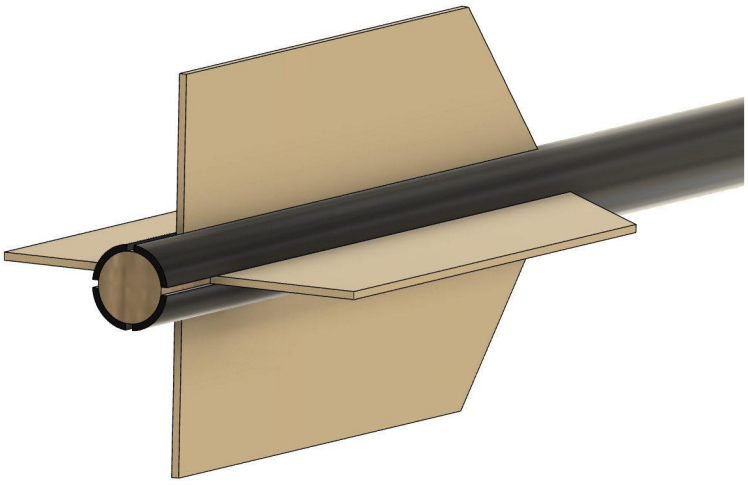
Tail-fin assembly



The fins are cut from 3mm thick MDF board.
A 3mm wide slot is cut 1/2 way each at end.



A saw is used to make two 12” long slots in the rear of the pipe enabling the fins to slot in place.



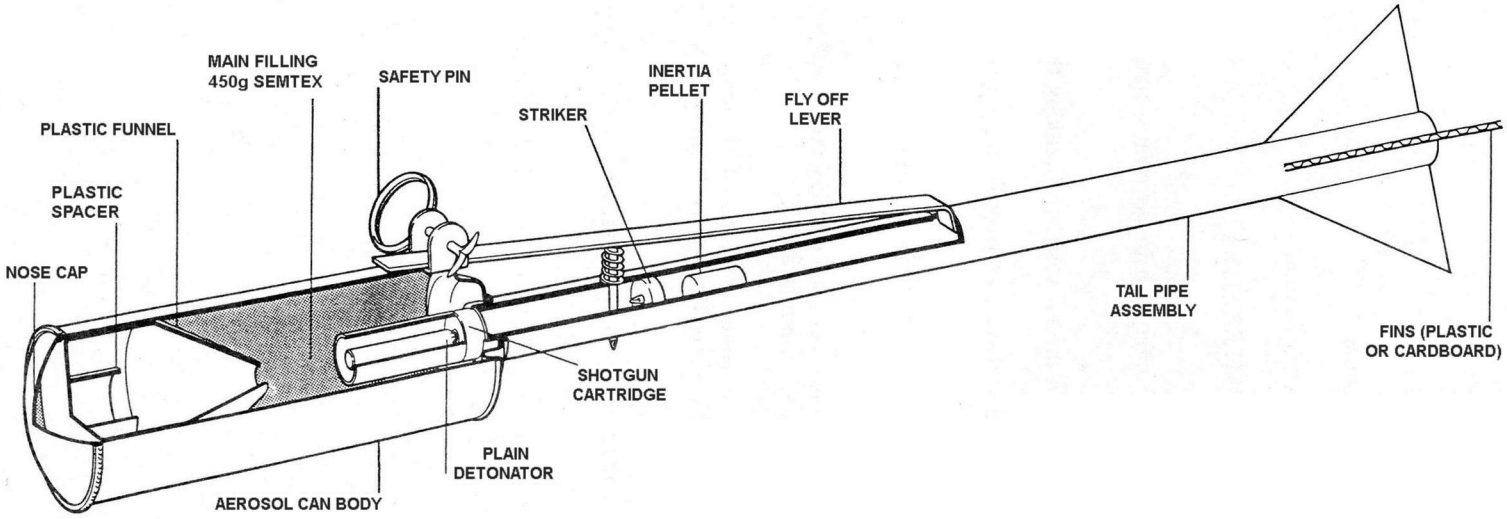
A 1.5” long wood dowel plug is inserted
and electrical tape tightly wrapped over to secure.

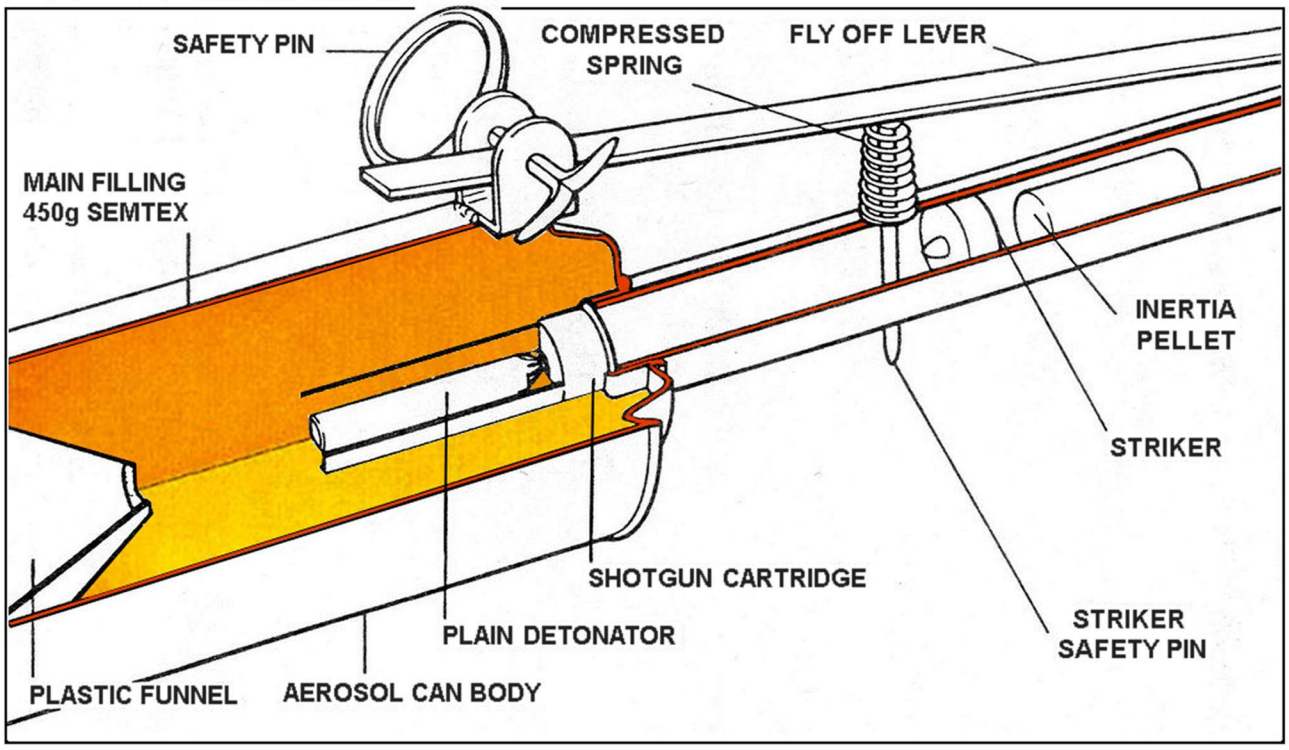
PIRA IAAG (Improvised Anti-Armour Grenade) Mark-2

The Mark-2 IAAG first appeared in Lenadoon, Belfast on 3rd May 1990, It works along the same principles as the IAAG Mark-1. The container housing the shaped-charge is an aerosol can containing around 450g of SEMTEX-H. A stand-off is provided by a plastic cap being inverted and positioned inside the can along with a plastic funnel (replacing a metal cone) as a liner to the shaped charge. Contained inside the plastic tubing handle is a separate striker (moulded isopon with a filed down nail centrally positioned) and an inertia pellet made from a short piece of steel bar. The .22 rimfire cap encountered on the MK-1 has been substituted by an empty shotgun cartridge using its primer used to initiate a plain detonator secured inside the cartridge case. The cartridge is inserted into a hole made into the top of the can (held by its rim) and followed by the handle which is glued in place. The base of the can is removed allowing insertion of the shaped charge and stand-off. The base itself is then either inserted or inverted & placed over (depending on the type of can) and retained with epoxy to seal the unit.

The device is thrown javelin style and is used as a side attack weapon. It appears fairly aerodynamic and has increased the stand-off range of the attacker. Typical ranges from throwing to contact points are between 10 and 20 meters. The device has been encountered in a number of different colours (grey, black, red & orange) and has displayed several inconsistencies in manufacture.

PIRA IMPROVISED ANTI-ARMOUR GRENADE (IAAG) MK2

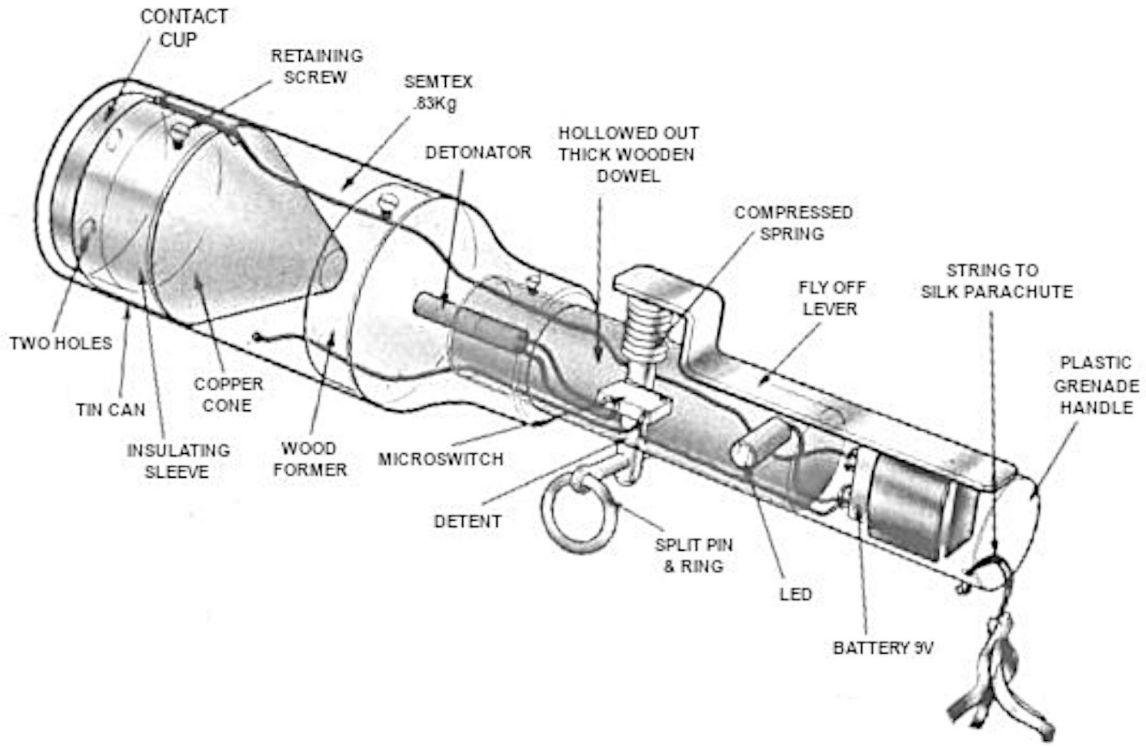




MK2 IAAG DIMENSIONS

OVERALL LENGTH	605mm
WARHEAD LENGTH	195mm
WARHEAD DIAMETER	65mm

PIRA IAAG (Improvised Anti-Armour Grenade) Mark 3



The Mark-3 IAAG was introduced in 1990 shortly after the Mark-2. It is similar in appearance and construction to the Mark-1 but differs from both previous models in that it uses an electronic means of initiation. The warhead shaped-charge consists of just over 800 grams of SEMTEX-H with a folded copper cone. The warhead housing is a standard small food can with both ends opened, one end fitted with a wooden former plug similar to the Mark-1. Power is provided via a 9V battery housed inside the plastic tube handle. When the safety pin is pulled and the grenade thrown the detent bar attached to the fly-off lever releases a long-arm micro-switch, arming the grenade. The circuit wires are soldered to both the inner walls of the can and to a contact cup at the front of the warhead (This can be a plastic lid covered in metallic foil). An insulating sleeve is placed around the contact cup leaving a small space between the wall of the can and cup at the front of the warhead. When the IAAG strikes a target it will have a tendency do so at a slight angle. In this case the thin wall of the can will dent inwards against the contact cup, completing the electrical circuit to the detonator. A silk drogue parachute is provided to help orientate the grenade during flight.

Standard Improvised Munitions Vol.2

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